Discrete Math facts:

Topic	Discrete Math Result
Sums	$1 + 2 + \ldots + n = \frac{n(n+1)}{2}$
Log rule	$log(n^a) = a\, log(n)$
Log rule	$log(a \cdot b) = log(a) + log(b)$
Log rule	$log(\frac{a}{b}) = log(a) - log(b)$
Log rule	$log(1) = 0$
Log rule	$a^{log_a n} = n$ Note that the cancellation applies because the bases 'a' match up.
Log rule	$log_a(a^k) = k$
Log rule	$a^{log_b n} = n^{log_b a}$ The exponent on the n is $log_b a$, which you can enter in your calculator.
Sum rule	$\sum_{k=0}^{L} a^k = \frac{a^{L+1}-1}{a-1}$
Sum Rule	$\sum_{k=0}^{infinity} a^k = \frac{1}{1-a}$ as long as |a|<1
Sum Rule	$\sum_{k=0}^{L} a^k \leq c$ as long as |a|<1
Sum Rule (from Week 3 bottom-up heap-building)	$\sum_{k=0}^{L} k(a)^k = \frac{a}{(1-a)^2}$ as long as |a|<1

Binomial Coefficient:	Number of ways of selecting k distinct items out of n items: $\binom{n}{k} = \frac{n!}{k!(n-k)!}$
Binomial coefficient for k = 2	Number of ways of selecting 2 distinct items out of n items: $\binom{n}{2} = \frac{n(n-1)}{2}$
Number of subsets	Number of ways of picking a subset of any size out of n items: 2^n